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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/619,090 | 07/14/2003 | Sadao Kanbe | 9319S-302CPA | 4696 |

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| EXAMINER |
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DINH, JACK

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| ART UNIT | PAPER NUMBER |
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2873

DATE MAILED: 03/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/619,090

Applicant(s)

KANBE, SADA0

Examiner

Jack Dinh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07/14/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: DETAILED ACTION.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 3, 4 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albert et al. (US Patent 6,172,798), in view of Enomoto et al. (US Patent 6,181,393).

Regarding claim 1, Albert (figure 5A) is interpreted as disclosing an electrophoretic display 500 comprising a plurality of microcapsules 510 disposed between a pair of substrates, wherein each microcapsule comprises an insulating fluid 540 and charged particles 530 dispersed in the fluid, wherein the microcapsules contact at least the substrate arranged at a display face side of the pair of substrates (see figure). Albert discloses all the claimed limitations except that the microcapsules contact the substrates with a flat face and mutually adjoining microcapsules contact each other with flat faces. Within the same field of endeavor, Enomoto (figure 1) is interpreted as disclosing the teaching that microcapsules 6-9 contact the substrates with a flat face and mutually adjoining microcapsules contact each other with flat faces. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the microcapsules contacting each other and the substrate with flat faces, for the purpose of reducing the amount of space taken by the microcapsules between the substrates.

Regarding claim 3, Albert (figure 4C) is interpreted as disclosing a method for making an electrophoretic display including a plurality of microcapsules **400** disposed between a pair of substrates, the method comprising disposing a spacer **480** between the pair of substrates to bond the pair of substrates, and fixing the pair of substrates while pressing the substrates so that the microcapsules contact the pair of substrates (col. 3, lines 36-42). Although Albert et al. does not explicitly disclose that the spacer having a diameter which is smaller than the diameter of the microcapsules, Albert et al. discloses that the spacer cavities are diverse in shapes and sizes (col. 13, lines 66-67 and col. 14, line 1). Albert discloses all the claimed limitations except that the microcapsules contact the substrates with a flat face and mutually adjoining microcapsules contact each other with flat faces. Within the same field of endeavor, Enomoto (figure 1) is interpreted as disclosing the teaching that microcapsules **6-9** contact the substrates with a flat face and mutually adjoining microcapsules contact each other with flat faces. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide spacers with smaller diameter than the diameter of the microcapsules, so as to accommodate microcapsules of different sizes and shapes and to have the microcapsules contacting each other and the substrate with flat faces, for the purpose of reducing the amount of space taken by the microcapsules between the substrates.

Regarding claim 4, Albert (figure 4C) is interpreted as disclosing a method for making an electrophoretic display including a plurality of microcapsules **400** disposed between a pair of substrates **480** and **490**, the method comprising applying a microcapsule dispersion

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material including a binder and microcapsules dispersed in the binder (col. 2, lines 33-35) on the substrate lying at the display face side of the pair of substrates (see figure) and drying the substrate, and bonding the pair of substrates (col. 15 lines 28-52). Albert discloses all the claimed limitations except that the microcapsules contact the substrates with a flat face and mutually adjoining microcapsules contact each other with flat faces. Within the same field of endeavor, Enomoto (figure 1) is interpreted as disclosing the teaching that microcapsules 6-9 contact the substrates with a flat face and mutually adjoining microcapsules contact each other with flat faces. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the microcapsules contacting each other and the substrate with flat faces, for the purpose of reducing the amount of space taken by the microcapsules between the substrates.

Regarding claim 6, Albert et al. is interpreted as further disclosing an electronic apparatus comprising an electrophoretic display (col. 1, lines 18-31).

Regarding claim 7, Albert (figures 5A-C) is interpreted as disclosing an electrophoretic display comprising a pair of substrates, and a plurality of microcapsules 510 and 550 in which a plurality of particles and fluid are contained, the microcapsules arranged between the substrates, wherein each of the plurality of microcapsules is different in shape and in contact with each other (see figures; col. 2, lines 33-47). Albert discloses all the claimed limitations except that the microcapsules contact the substrates with a flat face and mutually adjoining microcapsules contact each other with flat faces. Within the same field of endeavor, Enomoto (figure 1) is

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interpreted as disclosing the teaching that microcapsules 6-9 contact the substrates with a flat face and mutually adjoining microcapsules contact each other with flat faces. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the microcapsules contacting each other and the substrate with flat faces, for the purpose of reducing the amount of space taken by the microcapsules between the substrates.

Regarding claim 8, Albert et al. (figure 5B) is interpreted as further disclosing that each of the microcapsules is deformed so as to fill gaps formed therebetween (col. 15, lines 28-52).

Regarding claim 9, Albert et al. is interpreted as further disclosing that the plurality of particles are electrically charged (col. 8, lines 50-51) and the fluid is colored (col. 8, lines 56-57).

2. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Albert et al. (US Patent 6,172,798) in view of Enomoto et al. (US Patent 6,181,393), as applied in claim 4, and further in view of Iwasaki et al. (US Patent 5,972,493).

Regarding claim 5, Albert is interpreted as further disclosing the step of applying microcapsule dispersion material (col. 3, lines 47-64). Albert in view of Enomoto discloses all the claimed limitations except that the microcapsule dispersion includes an emulsion adhesive, and that the thickness of the microcapsule dispersion material is one to three times the diameter of the microcapsules. Within the same field of endeavor, Iwasaki is interpreted as disclosing the teaching of microcapsules including emulsion adhesive (col. 6, lines 60-63). Although Iwasaki

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et al. does not disclose that the microcapsule dispersion material contains 50% or less by weight of the microcapsules, and the emulsion adhesive after drying contains 10% by volume or less of the microcapsules, or that the microcapsule dispersion material is one to three times the diameter of the microcapsules, such ranges would be within experimental perimeters. It is considered not inventive to discover the optimum ranges by routine experimentations. Therefore, it would have been obvious to one having ordinary skill in the art at the time that the invention was made to provide such range, so as to select a preferred compound percentage for the microcapsule dispersion.

3. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albert et al. (US Patent 6,172,798) in view of Enomoto et al. (US Patent 6,181,393), as applied in claim 7, and further in view of Comiskey et al. (US Patent 6,724,519).

Regarding claims 10 and 11, Albert in view of Enomoto is interpreted as disclosing all the claimed limitations, as described above, except that the plurality of particles comprising two groups of different charges and colors. Within the same field of endeavor, Comiskey is interpreted as disclosing an electrophoretic display wherein the plurality of particles comprises a first group of positively charged particles and a second group of negatively charged particles wherein the particles in the two groups are different in colors (col. 13, lines 43-67). Therefore, it would have been obvious to one having ordinary skill in the art at the time that the invention was

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made to provide two particle groups of different charges and colors, as taught by Comiskey, so as to permit an electrophoretic element to display two colors as desired.

Regarding claim 12, Albert et al. is interpreted as further disclosing that the fluid is transparent (col. 8, line 54).

Regarding claim 13, Albert et al. is interpreted as further disclosing an electronic apparatus comprising an electrophoretic display (col. 1, lines 18-31).

4. Claims 14-16 and 18 are rejected under 35 U.S.C. 102(e) as being unpatentable by Comiskey et al. (US Patent 6,724,519) in view of Enomoto et al. (US Patent 6,181,393).

Regarding claim 14, Comiskey (figure 1A) is interpreted as disclosing an electrophoretic display comprising a first substrate including an electrode 30 and a second substrate including an electrode 40 opposing the first substrate, the electrodes providing an electric field therebetween, and a plurality of microcapsules dispersed in a binder arranged between the substrates, the plurality of microcapsules each including a first group of charged particles and a second group of charged particles dispersed in a fluid, the first group of charged particles having a charge opposite to the charge of the second group of charged particles, wherein the first group of charged particles migrate in a direction of the electric field and the second group of charged particles migrate in a direction opposite of the electric field (col. 13, lines 43-67). Comiskey

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discloses all the claimed limitations except that the microcapsules contact the substrates with a flat face and mutually adjoining microcapsules contact each other with flat faces. Within the same field of endeavor, Enomoto (figure 1) is interpreted as disclosing the teaching that microcapsules 6-9 contact the substrates with a flat face and mutually adjoining microcapsules contact each other with flat faces. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the microcapsules contacting each other and the substrate with flat faces, for the purpose of reducing the amount of space taken by the microcapsules between the substrates.

Regarding claims 15 and 16, Comiskey et al. is interpreted as further disclosing a first group of positively charged particles and a second group of negatively charged particles wherein the particles in the two groups are different in colors (col. 13, lines 43-67).

Regarding claim 18, Comiskey et al. is interpreted as further disclosing an electronic apparatus comprising an electrophoretic display (col. 1, lines 21-30).

5. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Comiskey et al. (US Patent 6,724,519) in view of Enomoto et al. (US Patent 6,181,393), as applied in claim 14, in view of Albert et al. (US Patent 6,172,798).

Regarding claim 17, Comiskey in view of Enomoto is interpreted as disclosing all the claimed limitations, as described above, except that each of the microcapsules is deformed.

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Within the same field of endeavor, Albert et al. (figure 5B-C) is interpreted as disclosing the teaching wherein the microcapsules are deformed. Therefore, it would have been obvious to one having ordinary skill in the art at the time that the invention was made to deform the microcapsules, as taught by Albert, so as to fill gaps formed therebetween.

6. Claims 19, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Comiskey et al. (US Patent 6,724,519) in view of Enomoto et al. (US Patent 6,181,393), and further in view of Iwasaki et al. (US Patent 5,972,493).

Regarding claim 19, Comiskey et al. is interpreted as disclosing an electrophoretic device comprising a first substrate including a first electrode **30**, a second substrate including a second electrode **40**, the first and second electrode providing a positive or a negative electric field therebetween, a microcapsule dispersion material including a plurality of microcapsules **20**, each of the microcapsules containing at least one first particle and at least one second particle dispersed in a fluid, the first particle being positively charged and the second particle being negatively charged such that when the positive electric field is provided, the first particle is migrates away from a direction of the electric field and the second particle migrates toward the direction of the electric field (col. 13, lines 43-67). Comiskey discloses all the claimed limitations except that the microcapsules contact the substrates with a flat face and mutually adjoining microcapsules contact each other with flat faces, and that the microcapsule dispersion includes an emulsion adhesive. Within the same field of endeavor, Enomoto (figure 1) is interpreted as disclosing the teaching that microcapsules **6-9** contact the substrates with a flat

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face and mutually adjoining microcapsules contact each other with flat faces. Within the same field of endeavor, Iwasaki also discloses the teaching of microcapsules including emulsion adhesive (col. 6, lines 60-63). Although Iwasaki et al. does not disclose that the microcapsule dispersion material contains 50% or less by weight of the microcapsules, and the emulsion adhesive after drying contains 10% by volume or less of the microcapsules, such ranges would be within experimental perimeters. It is considered not inventive to discover the optimum ranges by routine experimentations. Therefore, it would have been obvious to one having ordinary skill in the art at the time that the invention was made to provide such range, so as to select a preferred compound percentage for the microcapsule dispersion, and to have the microcapsules contacting each other and the substrate with flat faces, for the purpose of reducing the amount of space taken by the microcapsules between the substrates.

Regarding claim 20, Comiskey et al. is interpreted as further disclosing the first charged particles and the second charged particles are different in colors (col. 13, lines 43-67).

Regarding claim 22, Comiskey et al. is interpreted as further disclosing an electronic device including an electrophoretic device (col. 1, lines 21-30).

7. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Comiskey et al. (US Patent 6,724,519) in view of Enomoto et al. (US Patent 6,181,393) and Iwasaki et al. (US Patent 5,972,493), as applied in claim 19, and further in view of Albert et al. (US Patent 6,172,798).

Regarding claim 21, Comiskey in view of Enomoto and Iwasaki is interpreted as disclosing all the claimed limitations, as described above, except that each of the microcapsules is deformed. Within the same field of endeavor, Albert et al. (figure 5B-C) is interpreted as disclosing the teaching wherein the microcapsules are deformed. Therefore, it would have been obvious to one having ordinary skill in the art at the time that the invention was made to deform the microcapsules, as taught by Albert et al., so as to fill gaps formed therebetween.

Response to Arguments

8. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Other Information/Remarks

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack Dinh whose telephone number is 571-272-2327. The examiner can normally be reached on M-F (9:30 AM - 6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jack Dinh


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